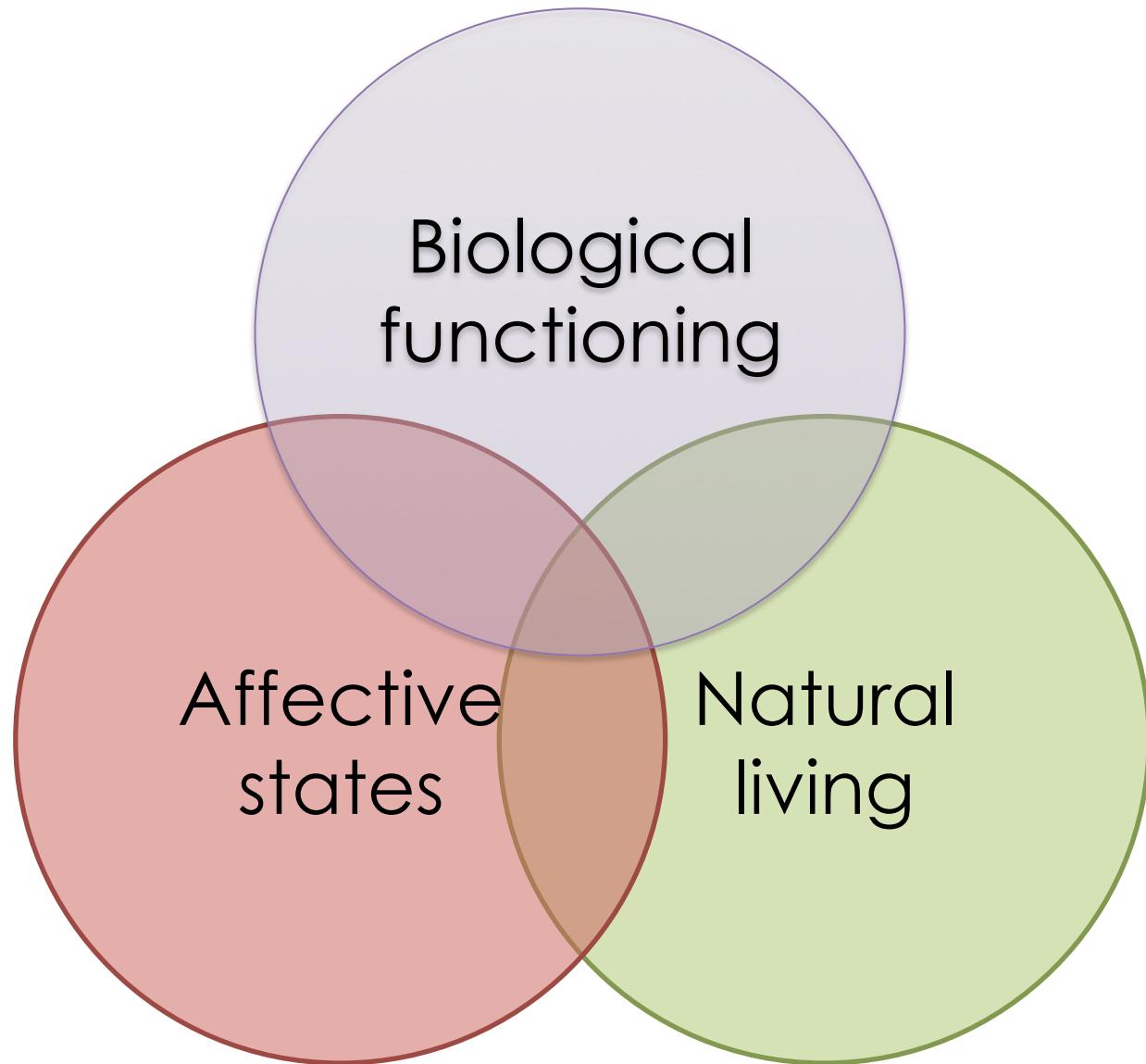


# Feeding behaviour and animal welfare

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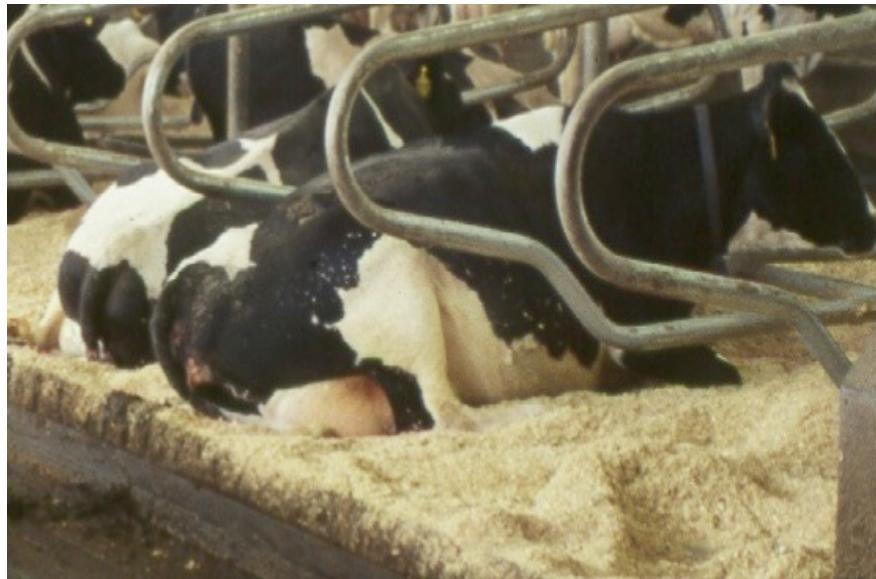
*Daniel M. Weary, Joao Costa, Heather Neave and Marina von Keyserlingk  
Animal Welfare Program, University of British Columbia*

# Animal welfare



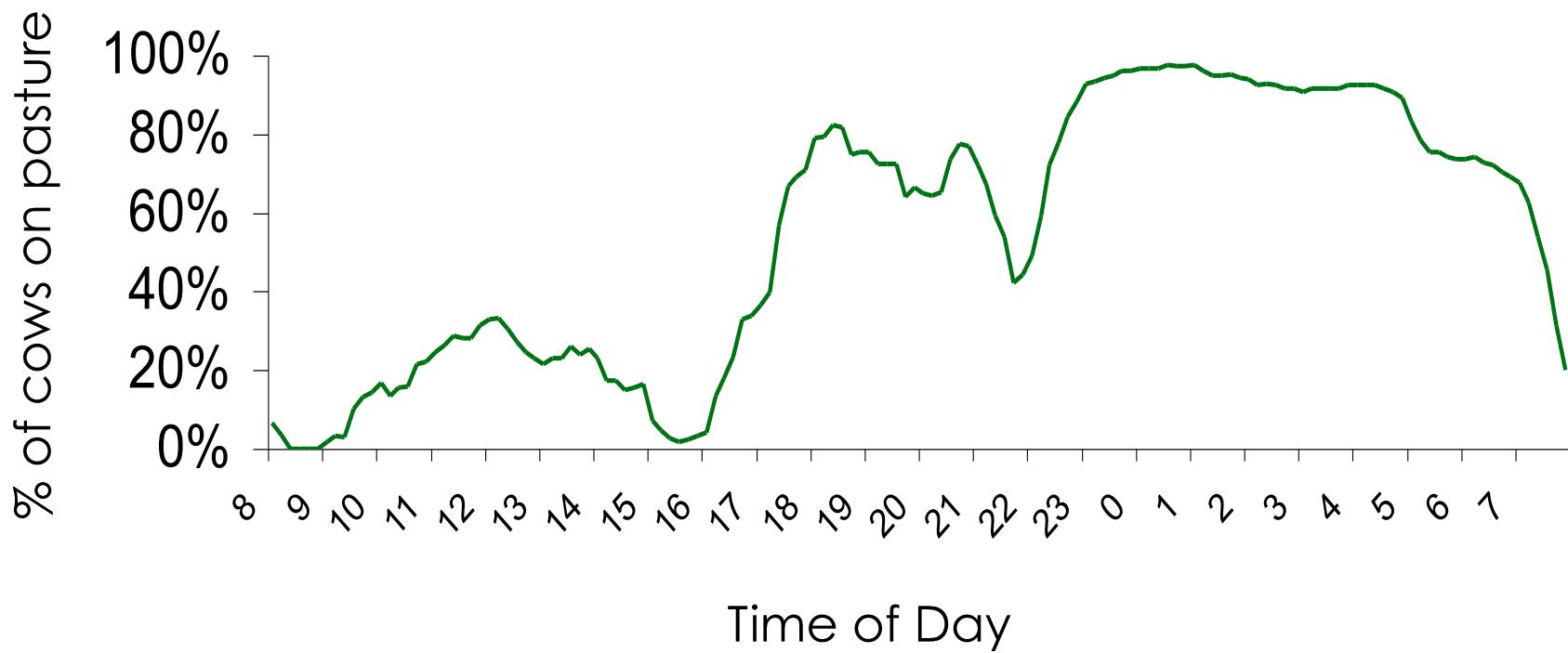
Fraser et al. 1997

# Preference for pasture?



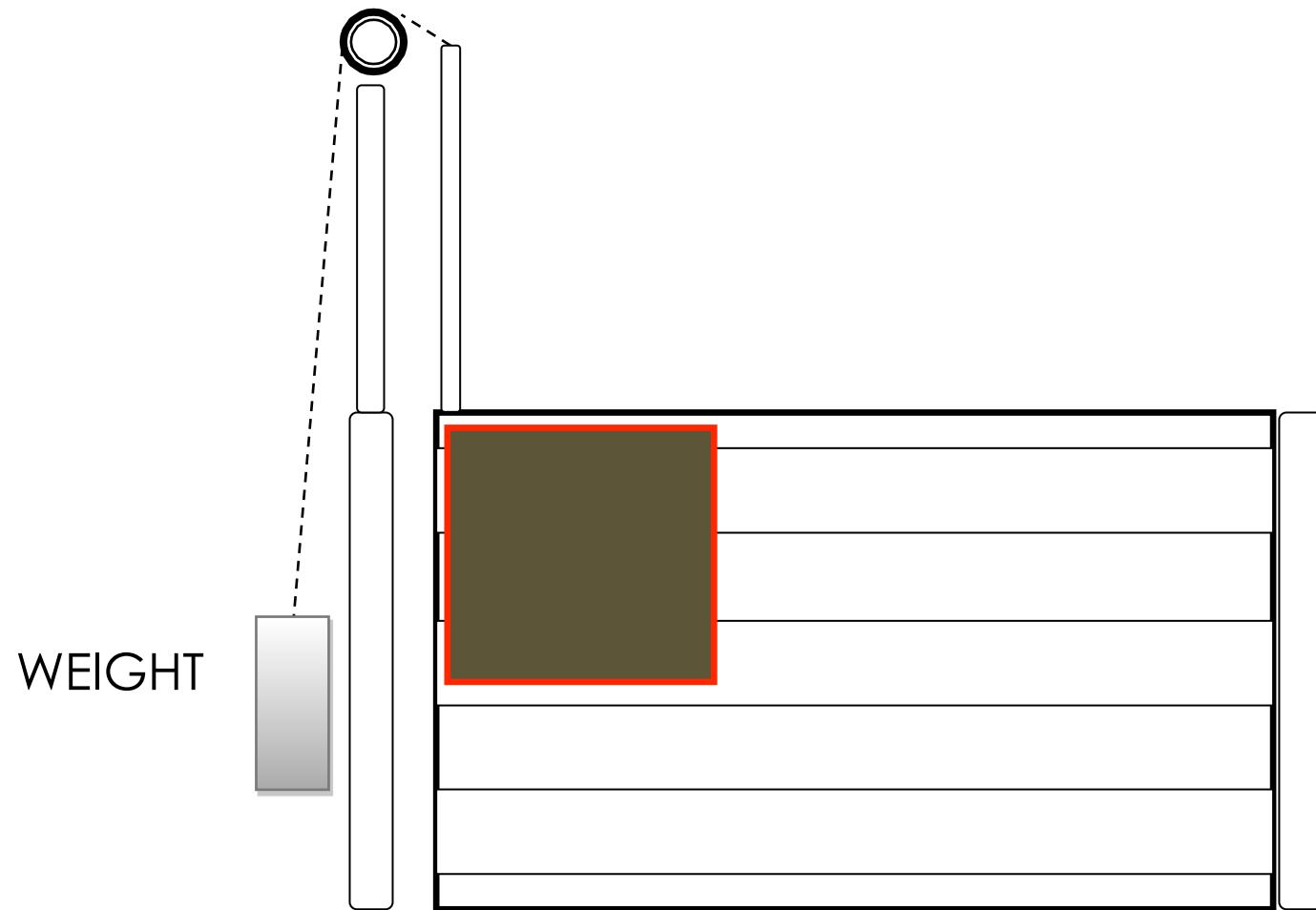
Legrand et al. 2009. J. Dairy Sci. 92: 3651-3658

Cows prefer pasture at night, and indoors during the day:



Legrand et al. 2009. J. Dairy Sci. 92: 3651-3658

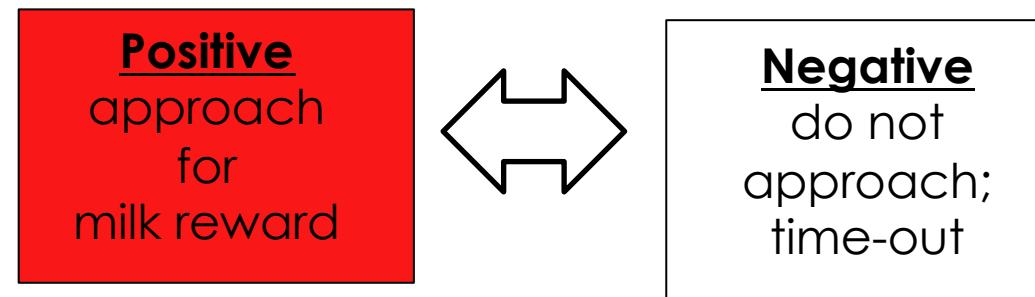
# Motivation for pasture?

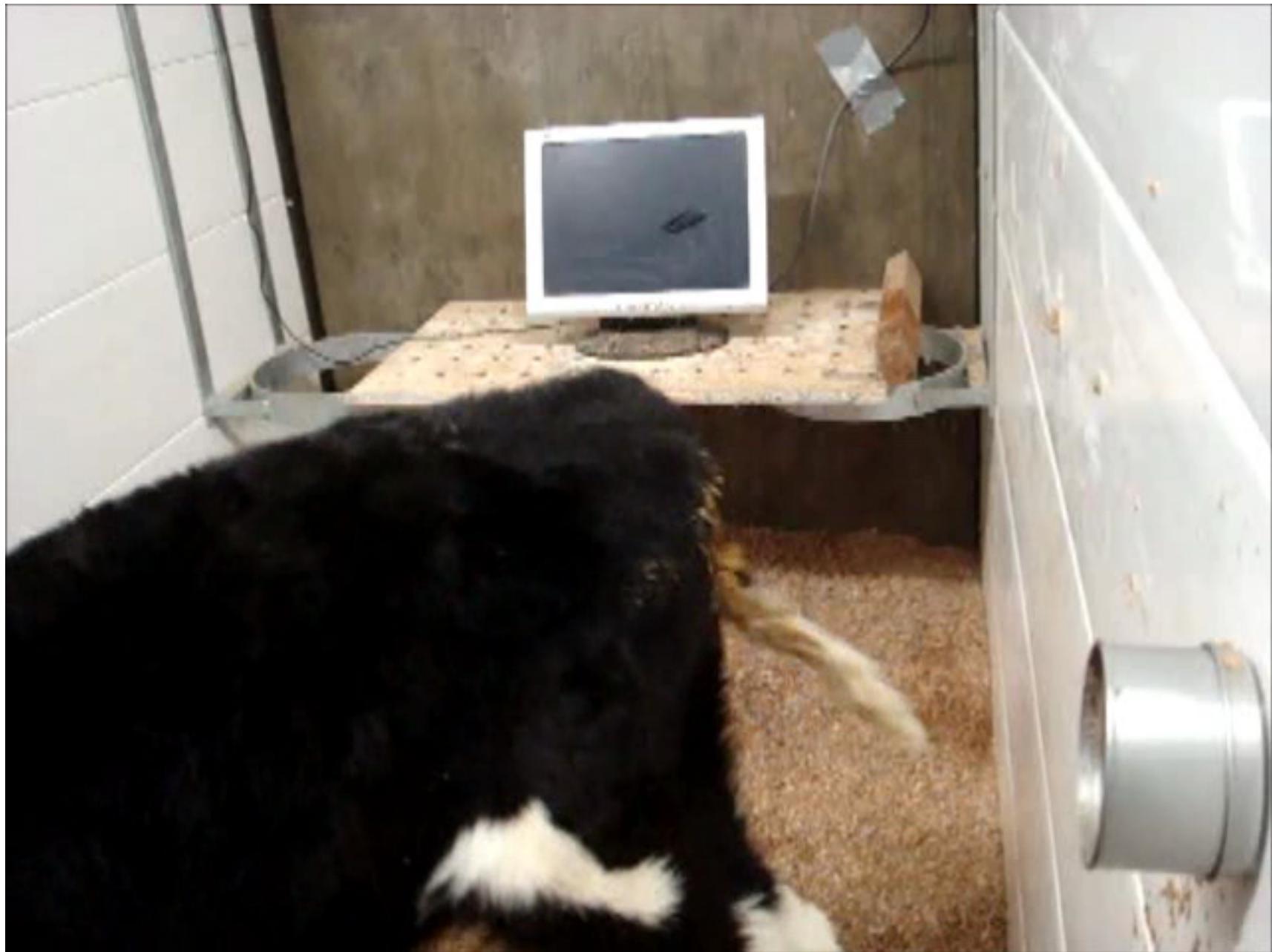




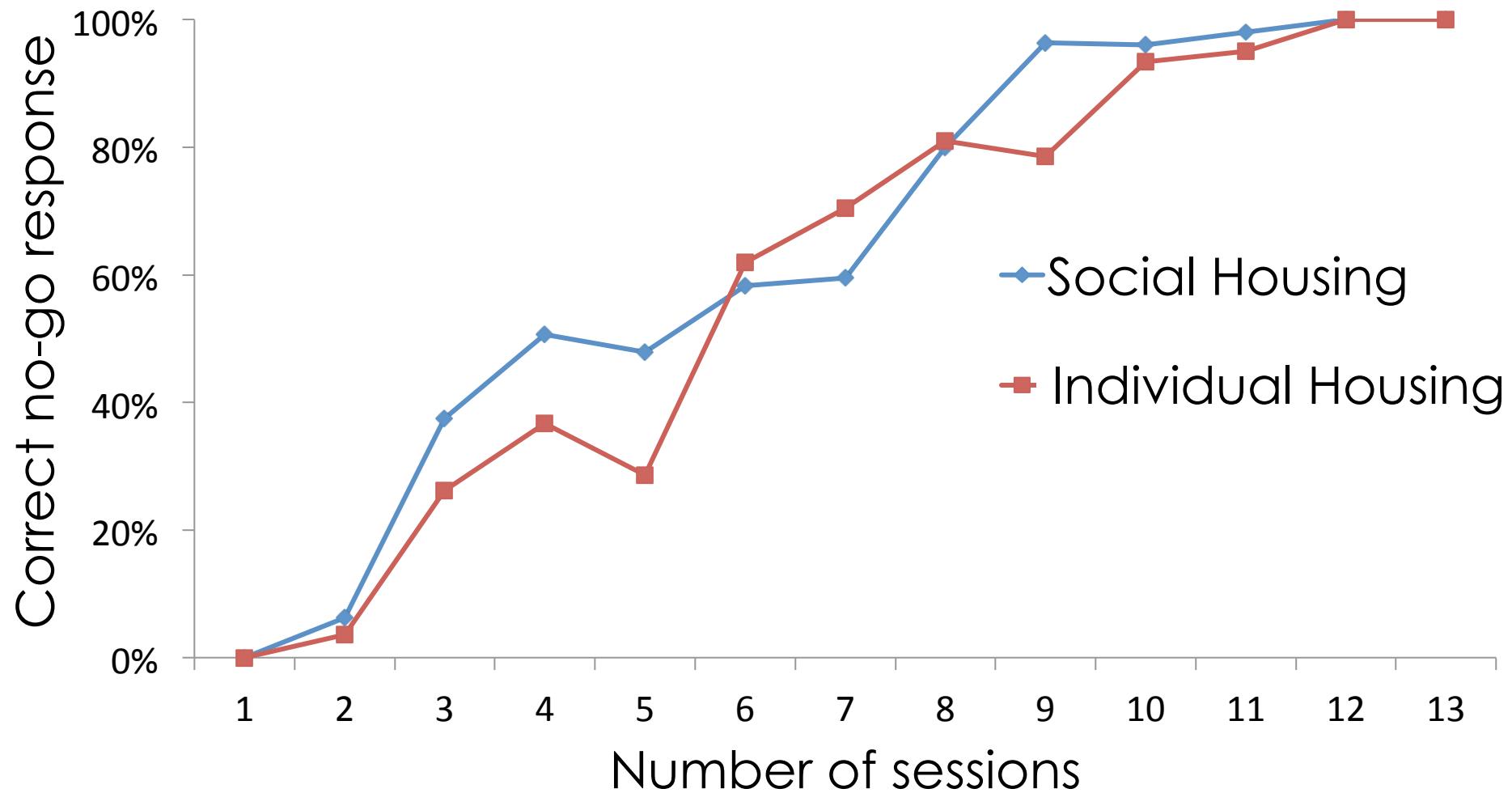
# Effects of social rearing on cognition

## Initial Discrimination



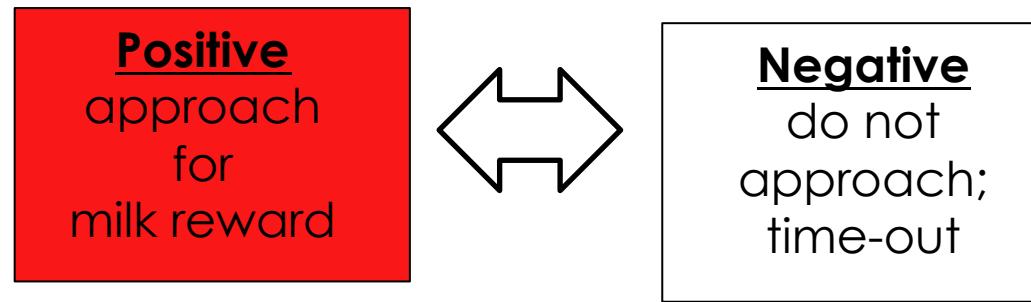


# Discrimination learning

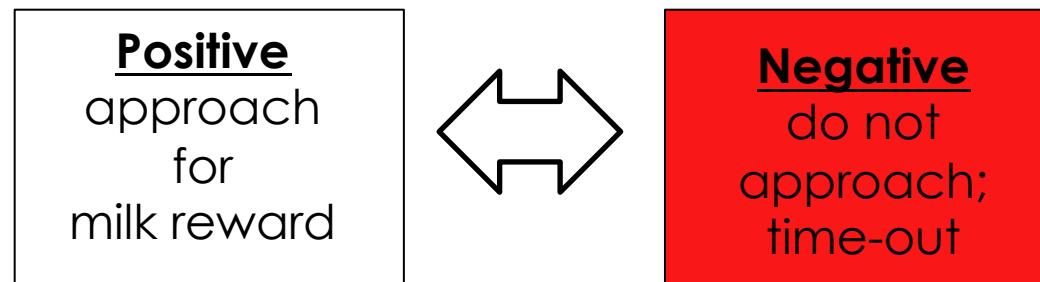


# Effects of social rearing on cognition

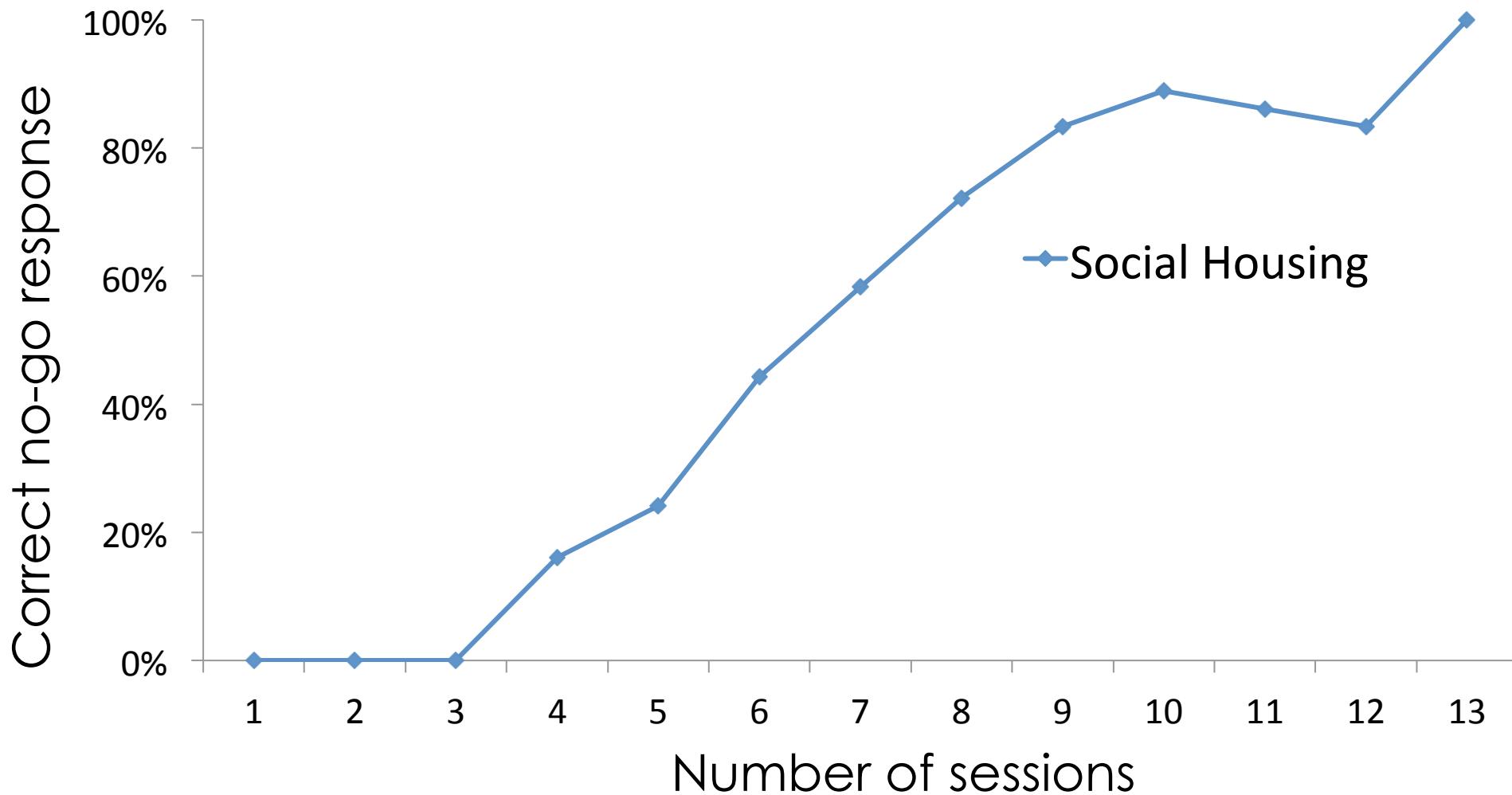
## Initial Discrimination



## Reversal

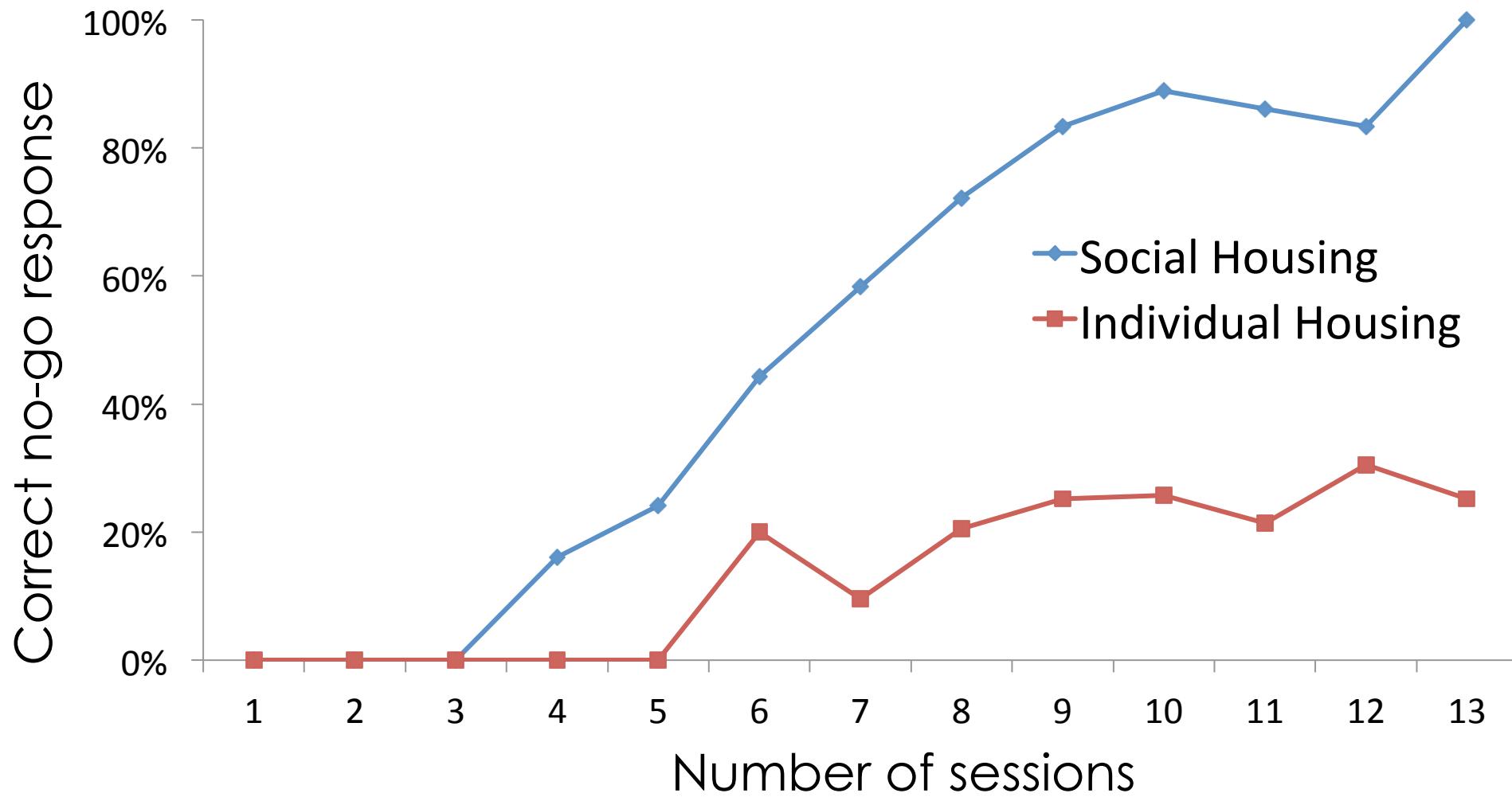


# Reversal learning



Meagher et al. 2015 PLoS ONE10: e0132828

# Reversal learning



Meagher et al. 2015 PLoS ONE10: e0132828

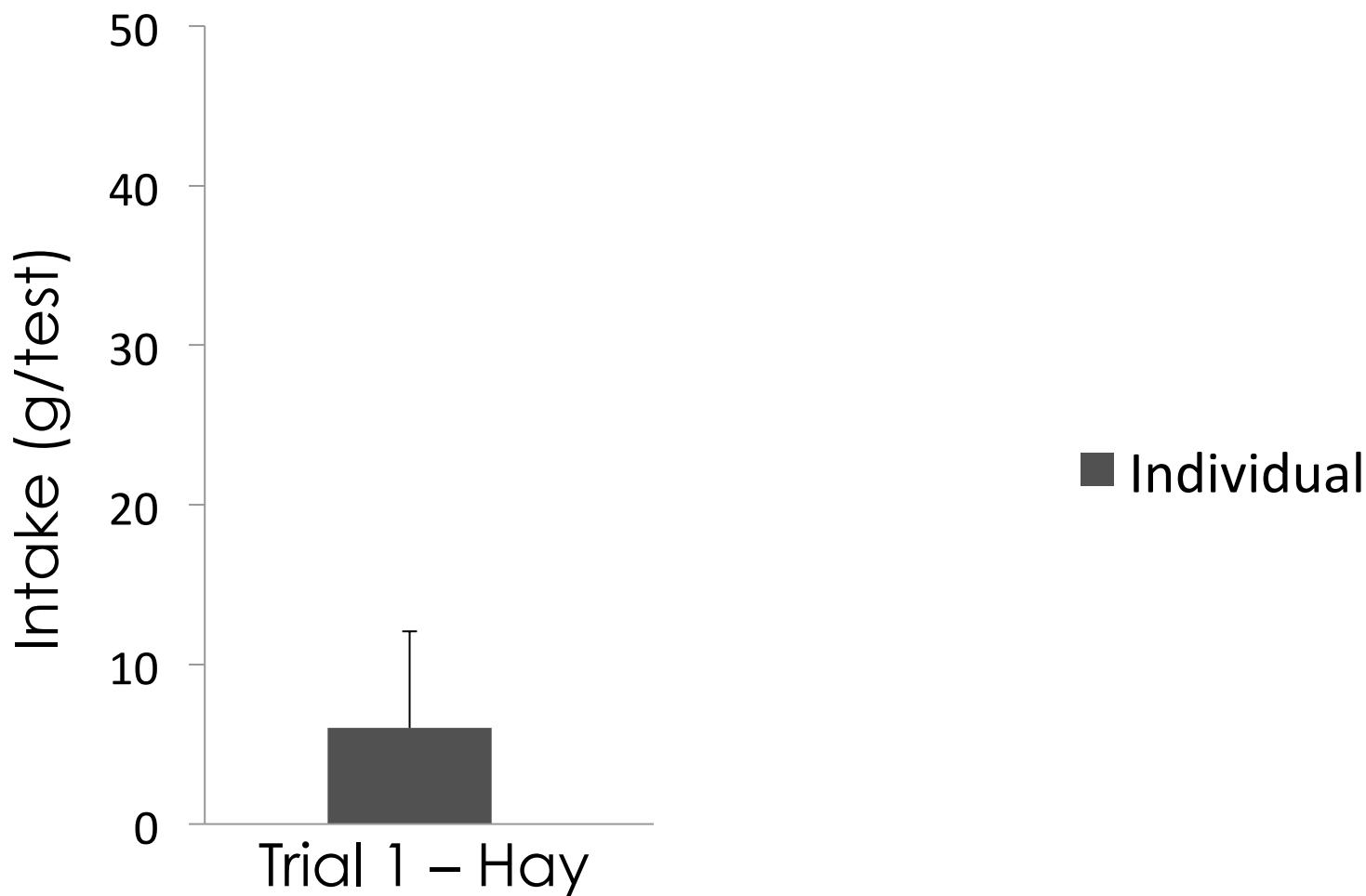
# Food neophobia test

- 70 d of age
- Presented 2 kg of novel food (chopped carrots or hay):

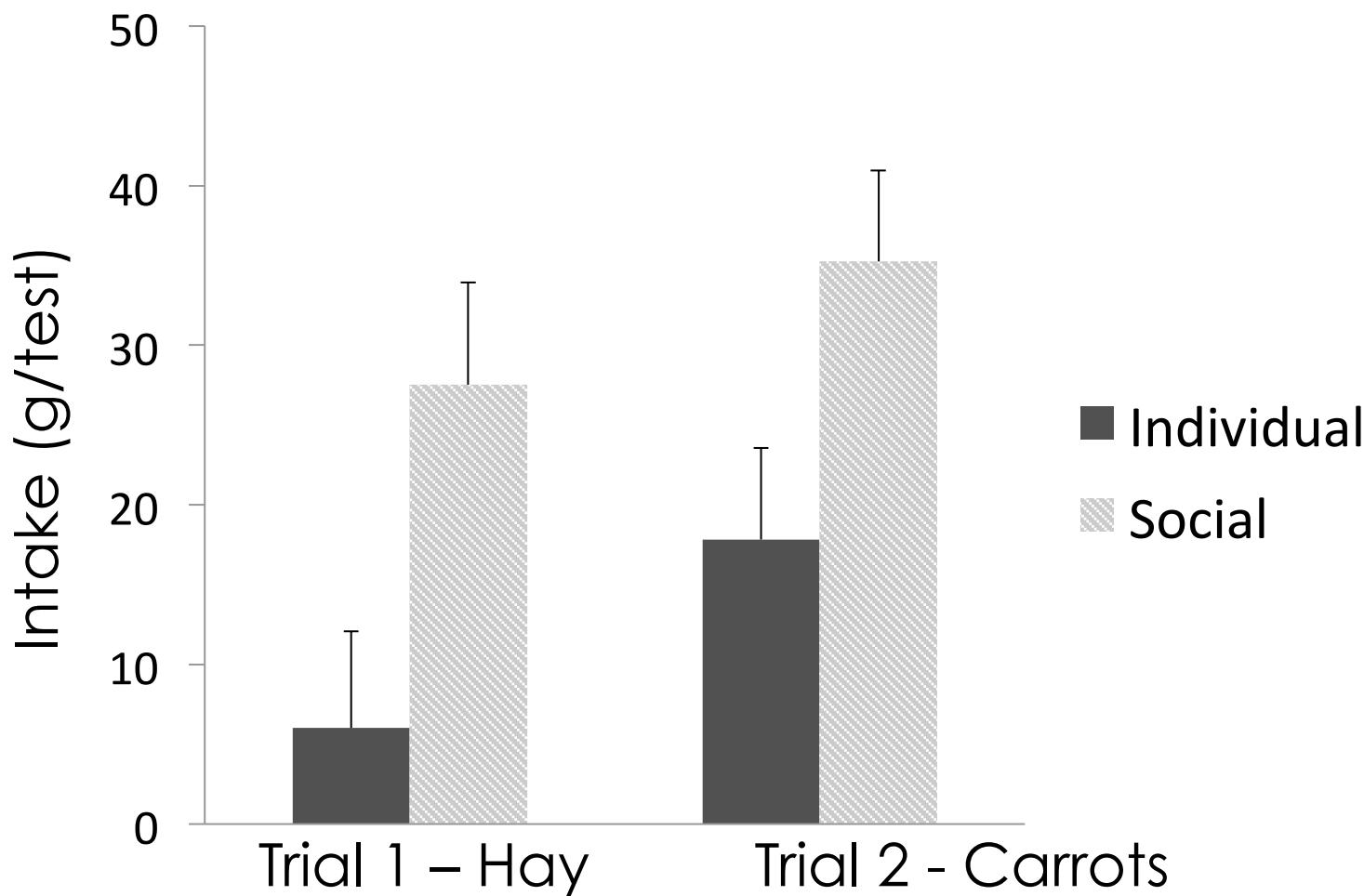


- Test lasted 30 min and repeated 3 times per calf

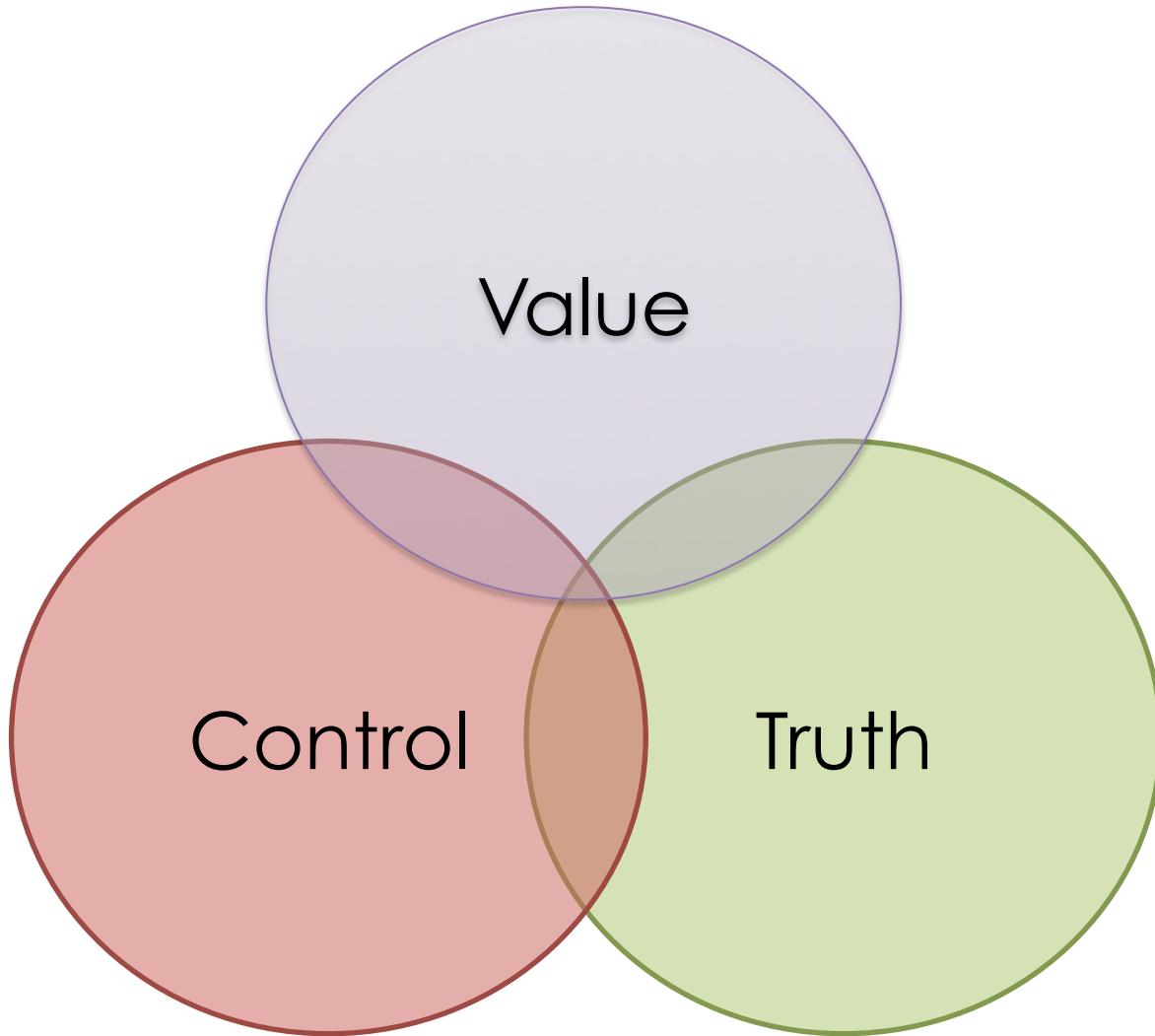
# Food neophobia test



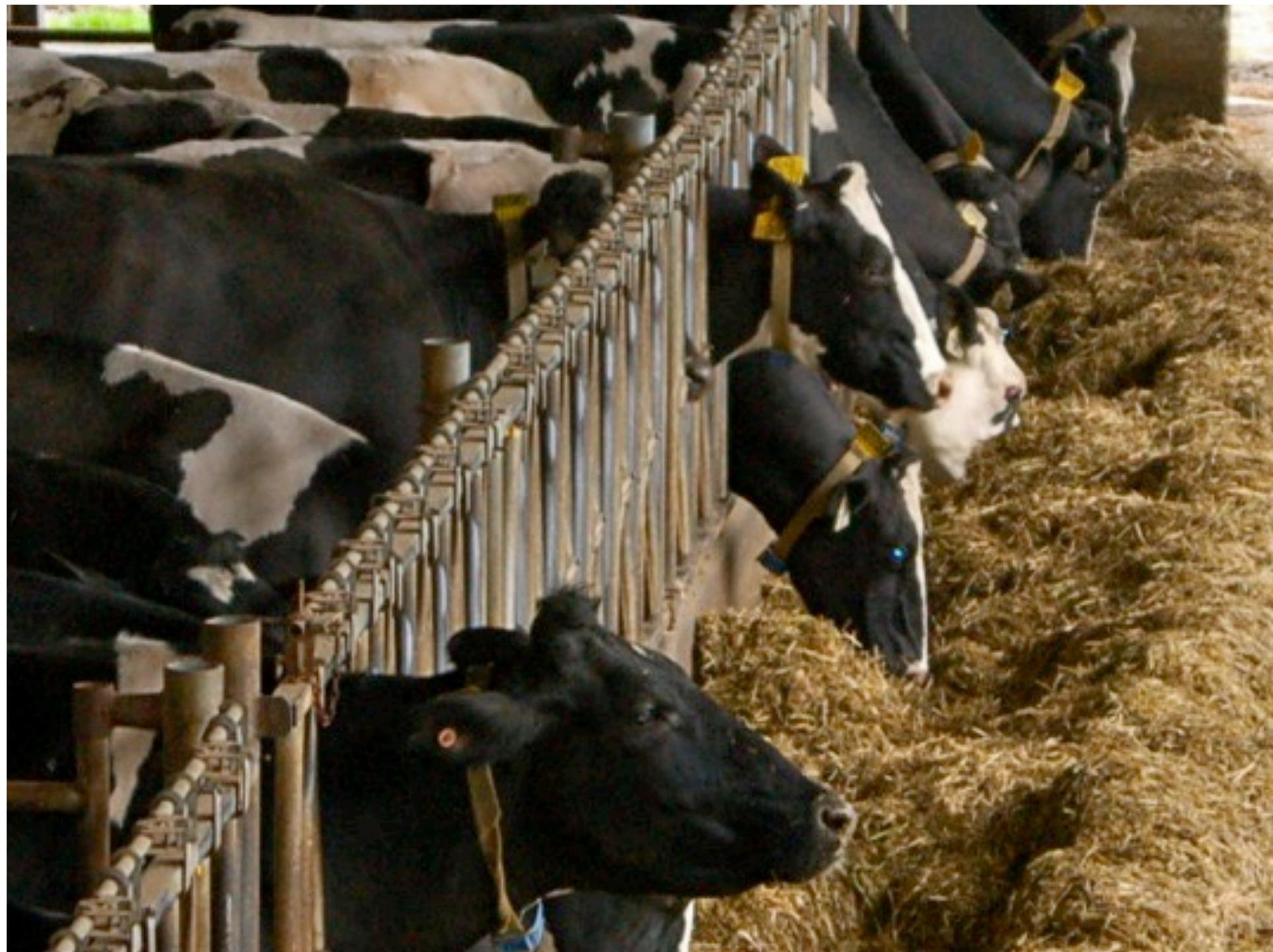
# Food neophobia test



# A new model for animal welfare?



Franks & Higgins, 2012. Adv. Exp. Social Psych.



# Grazing the bunk – truth seeking?

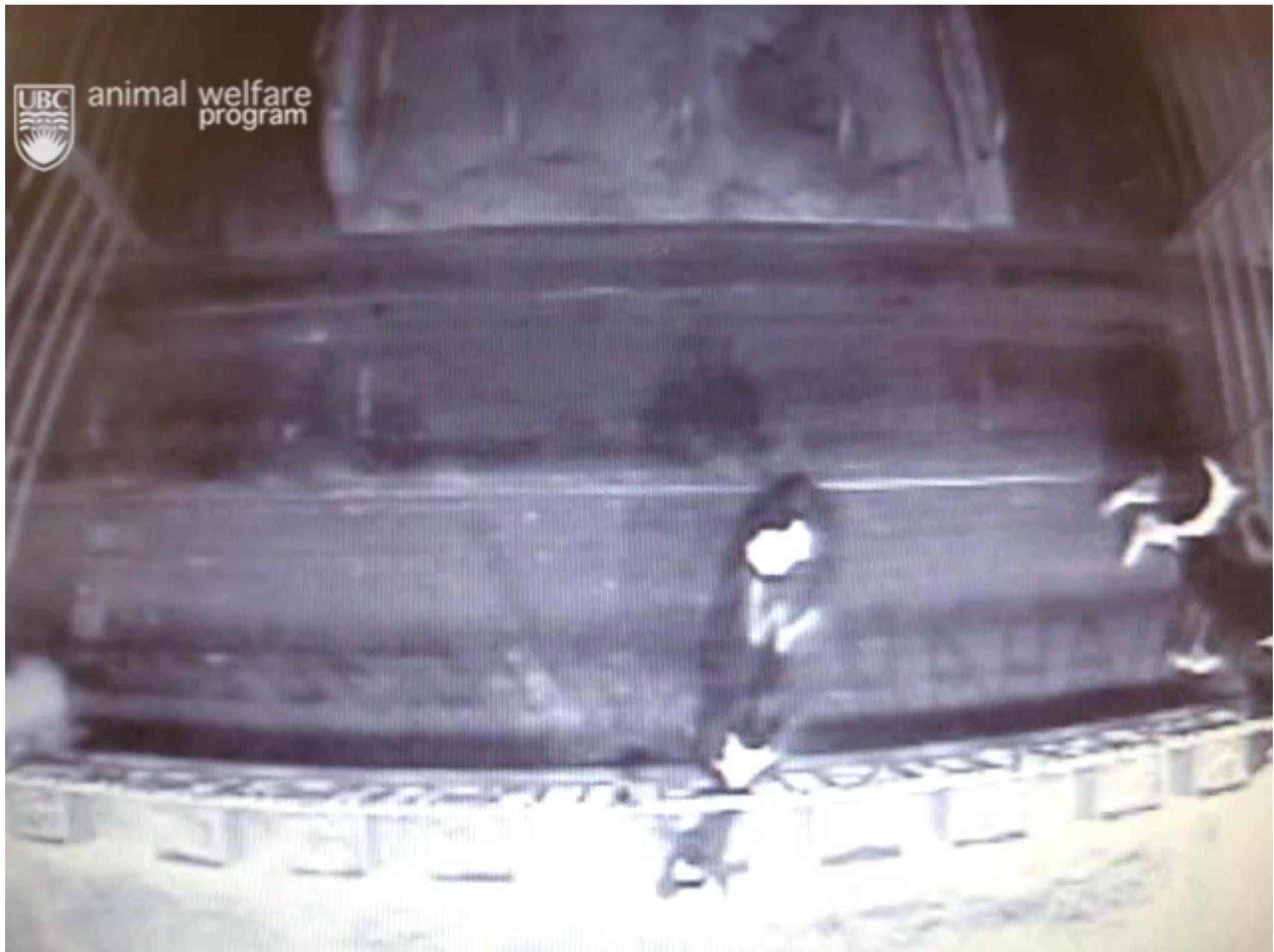
Ingredient	TMR-L	TMR-H
--Kg DM per heifer (% of total DM)--		
Fescue Hay	3.4 (68)	3.4 (42)
Corn Silage	1.1 (22)	1.1 (13)
Grass Silage	0.5 (10)	0.5 (6)
Grain Mix	0 (0)	3.2 (39)

**Training (non-uniform)**



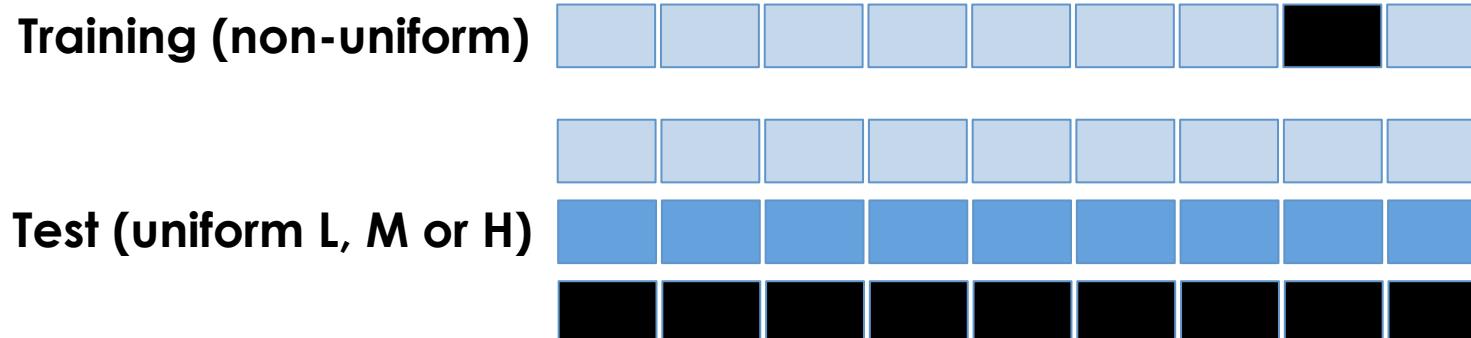


animal welfare  
program

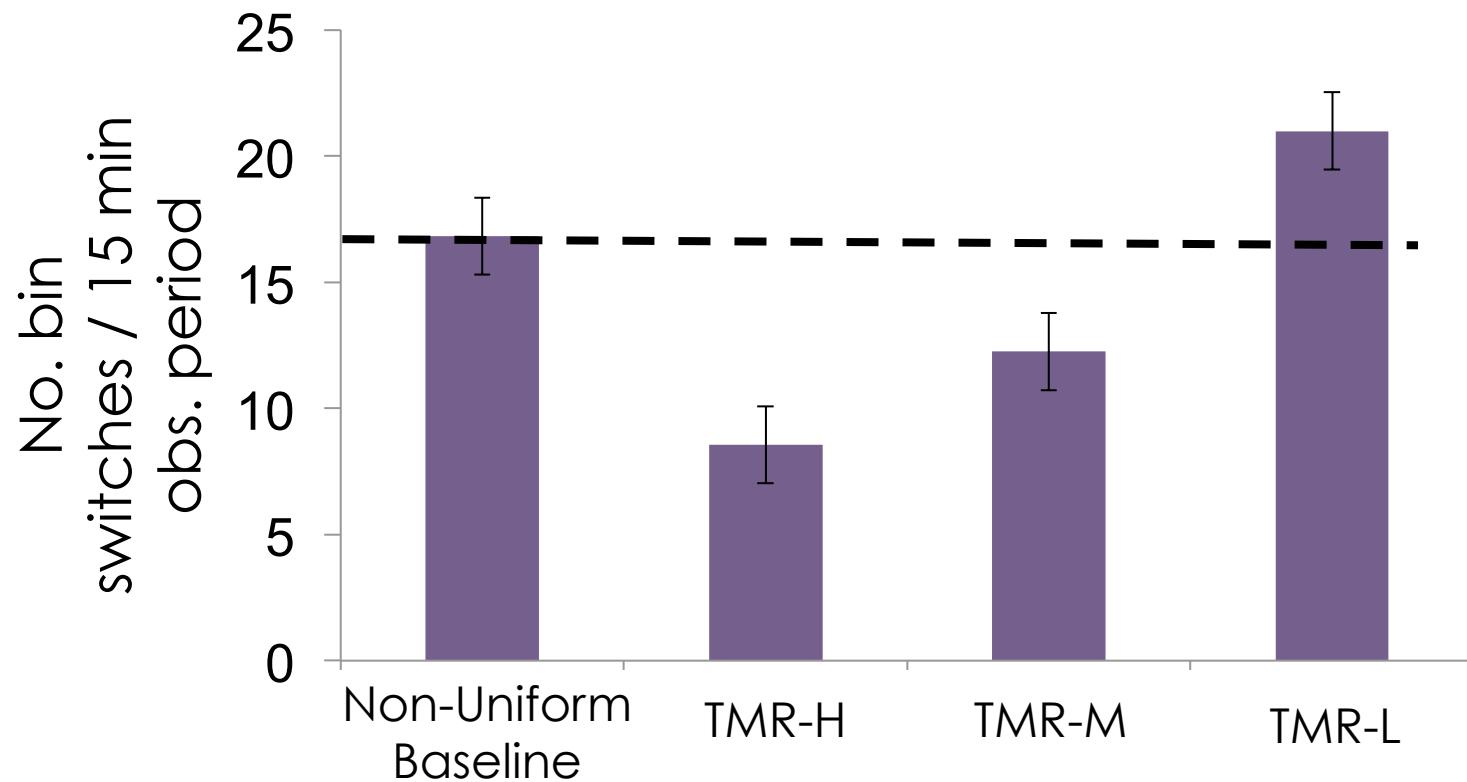


# Grazing the bunk – truth seeking?

Ingredient	TMR-L	TMR- M	TMR-H
--Kg DM per heifer (% of total DM)--			
Fescue Hay	3.4 (68)	3.4 (51)	3.4 (42)
Corn Silage	1.1 (22)	1.1 (17)	1.1 (13)
Grass Silage	0.5 (10)	0.5 (8)	0.5 (6)
Grain Mix	0 (0)	1.6 (24)	3.2 (39)



# Grazing the bunk – truth seeking?



# Sorting mixed feed – control seeking?



- Sorting of TMR
- With and without access to calf starter

Costa et al. *in review*

- Comparison of offered TMR with orts following a 24-hour feeding period



Costa et al. *in review*

Intake (% of predicted intake)

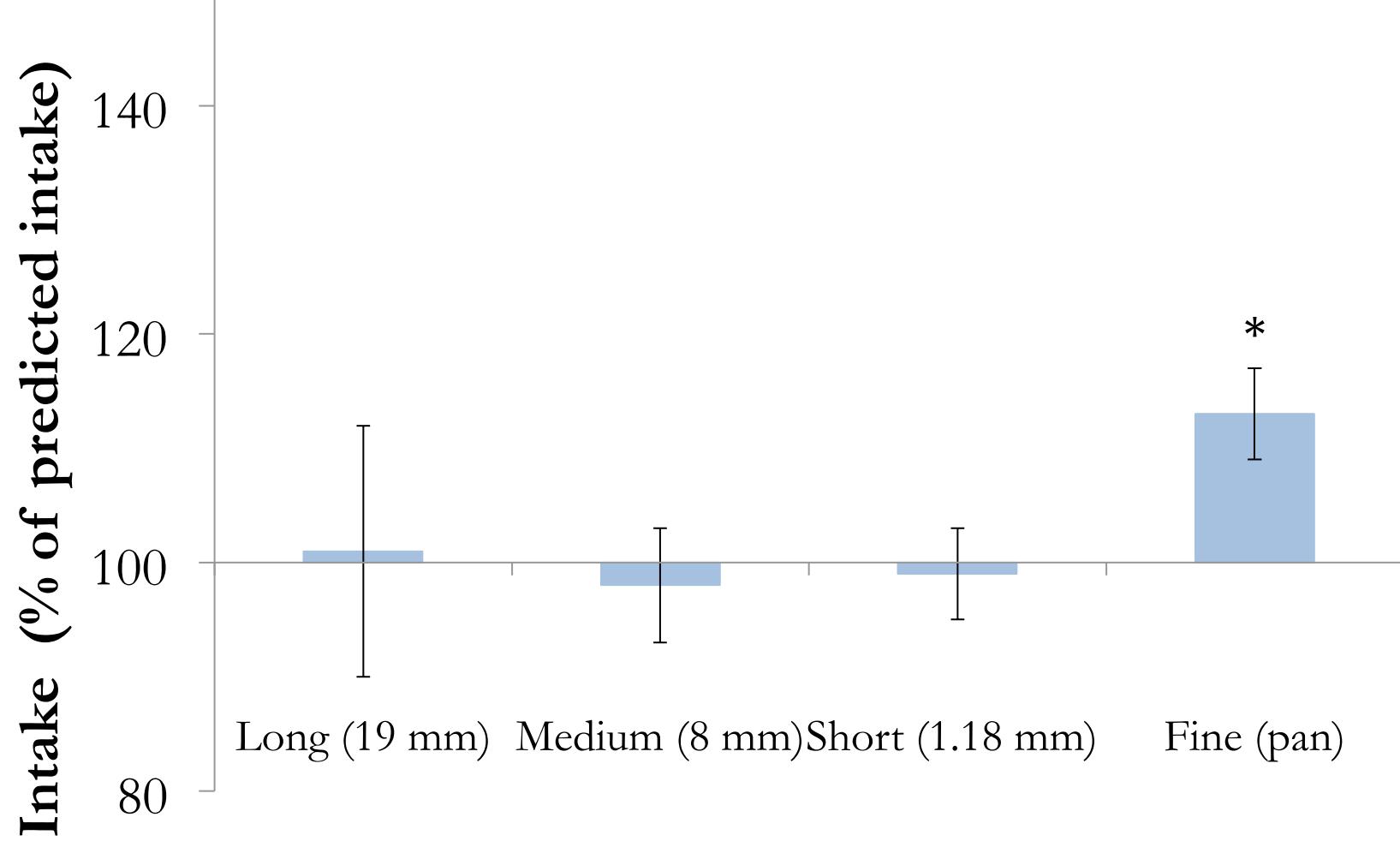
140  
120  
100  
80

Long (19 mm)   Medium (8 mm)   Short (1.18 mm)   Fine (pan)

\*



Costa et al. *in review*



Costa et al. *in review*

## Priorities for new research:

- Understanding the bi-directional relationship between health and feeding
- Understanding the effects of naturalistic environments on affective states and development
- Understanding ‘control’ and ‘truth’ seeking components of animal welfare



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